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### (54) Modular internal partition forming a container.

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### Description

The present invention relates to a modular internal partition forming a container designed to sub-divide rooms of large dimensions.

Internal partitions designed to allow a single large room to be divided into smaller portions, so that a number of offices, or internal areas with different uses and so on, can, for instance, be separated, are very widely used in many building applications, particularly in the case of offices and the like.

These internal partitions are normally produced with a modular structure so that they can be erected at any time after the construction of the walls of the room in which they are located and can be readily dismantled if the internal sub-division is moved or modified.

Partitions of this type must have specific properties, including effective insulation against sound, dust and so on and must be able to house doors, transparent components, openings and the like and to support brackets or must be thick enough to house shelves and the like thereby acting as a container as well as a partition.

From EP-A-1 469 932 it is known a modular internal partition forming a container, comprising a plurality of uprights and cross-bars connected in the form of a lattice within a perimetral metal profile, which uprights and cross-bars are formed by bearing panels transverse to the extension of the wall; closure panels and the like, either fixed or movable, supported by the panels of the vertical uprights are disposed between the uprights and cross-bars and a plurality of shelves may also be disposed between the successive uprights.

Such piece of furniture, however, requires complex and costly machining operations to form the panels and the relative joints and attachments, suitable to allow quick and easy assembly of the partition.

In fact a basic requirement in the production of partitions, which are thick enough to form a container, is their economy, which has to be combined with a high versatility, that is the possibility of assembling many different forms of partition combining together the various elements of the partition.

These requirements usually lead, as in the cited example of prior art, to structures relatively complex and requiring many machining operations, which increase the cost of the partitions.

Partitions forming a container are also required to have an attractive appearance which fits in the furnishings of the rooms which they bound both in blind areas and in the areas provided with transparent components, doors and the like. These results are achieved by the present invention, which provides a modular internal partition forming a container, comprising a plurality of uprights and cross-bars connected in the form of a lattice within a perimetral metal

profile, which uprights and cross-bars are formed by bearing panels transverse to the extension of the wall, closure panels and the like, in which the transverse vertical and horizontal panels are provided on their edges with gaskets sealing them against the closure panels, characterized in that the gaskets comprise a portion of rigid material having at least one surface transverse to the plane of extension of the panel, designed to form a dimensional reference surface for the machining of the panel, and one or more portions of flexible material, formed by flanges of flexible material coextruded with the portion(s) of rigid material and adjacent to recesses or cavities whose base surface extends rearwardly with respect to the reference surface(s), said flanges being deflectable in a position entirely housed in said recesses or cavities.

The transverse bearing panels are provided at least along their visible edges with metal finishing profiles, these profiles being provided with locking seats for the housing and connection of corresponding snap-locking components projecting from the gasket sealing against the closure panels.

The metal finishing profiles are provided with longitudinal recesses in the vicinity of their outwardly facing edges designed to form seats for the assembly and locking of covering walls of smaller thickness.

The metal finishing profiles are provided with lateral fastening flanges extended such that they overlap the surfaces of the panel on which they are mounted and provided with projections for retention on the panel, on whose surface the aligned holes close to the edge of the panel and designed to house the through connection pins are provided.

The transverse bearing panels are provided, at least on their visible edges, with a gasket applied directly to the panels by glueing.

The gasket has portions of rigid material substantially of rectangular section with recesses suitable to house the portion(s) of flexible material when in deflected position, said gaskets being wound in a spool so that it can be applied, using glue, to the edges of the panels by automatic edging machines.

The transverse bearing panels provided with metal finishing profiles and the transverse bearing panels provided with directly applied gaskets are dimensionally and functionally interchangeable.

The metal members for assembling the structure and anchoring the covering components are formed by components passing through the thickness of the panel, designed to be applied on a single surface of the panel and operating on both surfaces of the panel.

Further details are set out in the following description with reference to the attached drawings, in which:

Fig. 1 is a front view of a partition forming a container of the invention,

Fig. 2 is a section along the line II-II of Fig. 1,

Fig. 3 is a section along the line III-III of Fig. 1,

Fig. 4 is a detail of the end of a transverse panel,

In the position assembled to form the partition, Fig. 5 shows the panel of Fig. 4 during the machining stage,

Fig. 6 shows an alternative embodiment of a transverse panel of the partition which is interchangeable with the previous panel.

As shown in Figs. 1 and 2, the partition forming a container of the invention extends, for instance, between a pair of walls 1 facing one another, a floor 2 and a ceiling 3 in order to separate a room of large size into two portions.

The partition forming a container substantially comprises a perimetral frame 4 connected to the walls 1, floor 2 and ceiling 3 to which frame there is connected a plurality of transverse vertical panels 5 bearing respective transverse horizontal panels 6 forming compartments of various sizes within which there are disposed covering panels 7, shutters 8 which may be opened, transparent components 9 which may be fixed or openable, communicating doors 10 and the like.

As shown in further detail in Fig. 3, the fitted partition is provided with a double perimetral frame 4 to which there are connected, via respective upper and lower brackets 11a, 11b, the transverse vertical panels 5, advantageously of composite materials provided with a surface finish covering, connected to the flanges 12 of the brackets via respective pins 13, of which those disposed most externally in the partition support the skirting panels 14 connected with relative resilient members.

The transverse vertical panels are further provided with a plurality of uniformly spaced holes 15 in the vicinity of the vertical edges of the panels themselves, within which there may be inserted pins 16 supporting the transverse horizontal panels 6 whose structure is similar to that of the vertical panels and pins 17 designed to enable intermediate shelves 18 of the fixed solid partition panels 7 to be supported via relative hook plates 19 and of the transparent components 9 via relative hook panels 20; the holes 15 also house the fastening means 21 for hinges 22 bearing openable panels 8 and any other component which may be required.

An auxiliary cover profile 24 is also provided for the frames 23 of the transparent components so that the relative fastening members can be concealed from view.

As shown in detail in Fig. 4, the panels 5, 6 may be provided with finishing profiles 25 of metal material, such as aluminium alloy, disposed along the visible edges of the panel at the junctions between the adjacent closure panels 7, 8, 9 at the compartments for the assembly of the doors 10 and so on.

These finishing profiles have a coupling portion 26 with lateral flanges 27a formed with sawteeth projections designed to allow their connection to the panel, and a central projection 27b, also provided with

sawteeth projections designed to be inserted in a corresponding seat provided on the edge of the panel for the centering of the profile on the panel, and an external portion 28 having undercut recesses 29 designed to receive the hooking flanges 30 of a gasket 31.

The lateral flanges 27a are also designed to house the holes 15, thereby enabling the pins inserted therein to rest on metal surfaces at the surfaces of the panel and providing the pins with a high degree of accuracy and strength.

The finishing profile 25 also has lateral grooves 25a designed to form locking seats for the connection of closure panels of smaller thickness, as an alternative to the panels 7 in the case, for example, that the structure of the invention is used as a cupboard backing onto another wall, in which case panels with reduced aesthetic and insulating qualities can be used for the surface which is concealed, thereby obtaining a saving of space as well.

The gasket 31, as shown diagrammatically in Fig. 4, is provided to seal against the surface of the closure panels 7, 8, 9 or the like, by means of its flexible flanges 32 preventing the penetration of dust into the inner space of the partition and also guaranteeing insulation between the opposite surfaces of the overall partition.

The gasket 31, whose thickness determines the external dimension of the finished panel, is designed to be mounted in its seat prior to the final machining operations to be carried out on the panel at very precise heights, for instance the provision of the holes 15 which need to be precisely aligned with the edges of the panel so that the closure panels can subsequently be correctly assembled.

The gasket 31 comprises for this purpose the plane reference portions 33 whose front surfaces are designed to form, as shown in Fig. 5, the abutment surfaces resting against an abutment device 34 with respect to which the holes 15 are drilled at the distance "d".

In this condition the sealing flanges 32 are bent following the pressure of the panel being machined against the abutment device 34 and are contained in their entirety, in this bent position, within the rearwardly extending spaces 35 adjacent to the plane reference portions 33 without therefore interfering with the machining.

For this purpose the gasket 31 may be made of co-extruded plastic materials, for instance polyvinyl chloride (PVC), with various degrees of rigidity, the sealing flanges 32 in particular being made of flexible material, while the remaining parts of the gasket, in particular the portions 33, are made of rigid material.

As an alternative, the gasket may also be made in two pieces, one rigid and one flexible, connected together with connection means selected in respect of the properties of the materials used.

As shown in the upper part of Fig. 3, and in gre-

ater detail in Fig. 6, the transverse panels 5, 6 may be constructed in a more economic form by applying a sealing profile 36 directly to the edges of the panel 5, 6 so as to form both its finishing component and the component which seals it against the closure panels similarly to the gasket 31.

The sealing profile thus has a portion of rigid plastic material forming the edges 37 and the central reference portion 38 and has its sealing flanges 39 of flexible plastic material co-extruded with the previous portion or connected thereto adjacent to the recessed spaces 40.

The panel constructed in this way can thus be subjected to machining operations such as the provision of the holes 15 after the application of the sealing profile since, as shown in the right-hand portion of Fig. 6, when the panel bearing the profile 36 rests against the abutment device 34 for machining, the sealing flanges 39 bend easily and are housed in the relative spaces 40 without interfering with the correct support of the abutment surfaces of the portions 37, 38 disposed in the same plane and defining the external dimensions of the panel.

The sealing profile 36 may be advantageously applied by glueing, using suitable adhesive materials and materials for preparing the surfaces so as not to require machining operations on the edges of the panels 5, 6 to provide locking seats or the like in which the gasket can be housed.

Application by glueing can also be carried out automatically using appropriate glues, for example by conventional edging machines on which the sealing profile 36 can be disposed in spools.

This is enabled by the shape of the profile 36 with a substantially rectangular section whose flexibility, for the purposes of production in spools, is not greatly affected by the sealing flanges 39 of relatively flexible material.

The partition may therefore be constructed in two different qualities, either using metal finishing profiles for the transverse vertical and horizontal panels which cost more and are of higher quality, as described above, or using directly supporting transverse panels with the sealing gasket and perimetral finish connected by glueing, in a more economic embodiment; these solutions may be used at the same time in different positions on the partition, as required, since they are fully interchangeable.

The panels of the invention require the machining operations and the application of the metal members for the assembly of the structure, for anchoring the covering components and for connecting hinges and like housed in the holes 15, to be carried out on one side of the panel; these metal members are formed by components passing through the thickness of the panel and may project, where necessary, on both surfaces so as to allow the assembly of various components on both sides of the panel.

This is particularly advantageous both from the economic point of view, as a result of the reduction of the machining operations carried out and the total number of components assembled, and from the point of view of the higher resistance achieved since each of these assembly members passes through the entire thickness of the panel and is not therefore inserted in a blind hole of limited depth in the panel provided with a forced bushing as is commonly the case in the prior art.

The partition of the invention may be associated, without any aesthetic discontinuity, with partitions of other types, for instance partitions which are not as thick, designed merely for separation purposes, with which they may have many component parts in common, such as the perimetral profiles for connection to the wall structures, the closure panels, the transparent panels and so on and may also form a cupboard so as to obtain, together with these partitions and further furnishings, appropriately designed for use in this combination, an internal dividing, furnishing and storage structure suited to a very wide range of applications and methods of use.

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### Claims

1. Modular internal partition forming a container, comprising a plurality of uprights and cross-bars connected in the form of a lattice within a perimetral metal profile (4), which uprights and cross-bars are formed by bearing panels (5, 6) transverse to the extension of the wall, closure panels and the like, in which the transverse vertical and horizontal panels (5, 6) are provided on their edges with gaskets (31, 36) sealing them against the closure panels, characterized in that the gaskets comprise a portion of rigid material (33, 38) having at least one surface transverse to the plane of extension of the panel, designed to form a dimensional reference surface for the machining of the panel, and one or more portions of flexible material, formed by flanges (32, 39) of flexible material coextruded with the portion(s) of rigid material (33, 38) and adjacent to recesses or cavities (35, 40) whose base surface extends rearwardly with respect to the reference surface(s), said flanges being deflectable in a position entirely housed in said recesses or cavities.

2. Modular internal partition forming a container as claimed in claim 1, characterized in that the transverse bearing panels (5, 6) are provided at least along their visible edges with metal finishing profiles (25), these profiles being provided with locking seats (29) for the housing and connection of corresponding snap-locking components (30) projecting from the gasket sealing (31) against the closure panels.

3. Modular internal partition forming a container as claimed in claim 2, characterized in that the metal finishing profiles (25) are provided with longitudinal

recesses (25a) in the vicinity of their outwardly facing edges designed to form seats for the assembly and locking of covering walls of smaller thickness.

4. Modular internal partition forming a container as claimed in claim 2, characterized in that the metal finishing profiles (25) are provided with lateral fastening flanges (27a) extended such that they overlap the surfaces of the panel on which they are mounted and provided with projections (27b) for retention on the panel, on whose surface aligned holes (15) are provided, close to the edge of the panel and designed to house through connection pins (16, 17).

5. Modular internal partition forming a container as claimed in claim 1, characterized in that the transverse bearing panels (5, 6) are provided, at least on their visible edges, with a gasket (37) applied directly to the panels by glueing.

6. Modular internal partition forming a container as claimed in claim 5, characterized in that the gasket (37) has portions (38) of rigid material substantially of rectangular section with recesses (40) suitable to house the portion(s) of flexible material (39) when in deflected position, said gaskets being wound in a spool so that it can be applied, using glue, to the edges of the panels by automatic edging machines.

7. Modular internal partition forming a container as claimed in claims 2 and 5, characterized in that the transverse bearing panels provided with metal finishing profiles and the transverse bearing panels provided with directly applied gaskets are dimensionally and functionally interchangeable.

8. Modular internal partition forming a container as claimed in claim 1, characterized in that metal members for assembling the structure and anchoring the covering components are formed by components passing through the thickness of the panel, designed to be applied on a single surface of the panel and operating on both surfaces of the panel.

#### Ansprüche

1. Modularer, einen Behälter bildender Innenraumteiler, umfassend mehrere, in Form eines Gitters innerhalb eines Umfangs-Metallprofils (4) verbundene Steh- und Querstäbe, die gebildet werden durch Lagerplatten (5, 6) quer zur Wandertreckung, Verschlußplatten und dergleichen, wobei die vertikalen und horizontalen Querplatten (5, 8) an ihren Kanten mit Dichtungen (31, 36) ausgestattet sind, welche sie gegenüber den Verschlußplatten abdichten, dadurch gekennzeichnet, daß die Dichtungen aufweisen: einen Abschnitt aus steifem Material (33, 38) mit mindestens einer Oberfläche quer zur Erstreckungsfläche der Platte und ausgebildet als Abmessungs-Bezugsfläche für die Bearbeitung der Platte, und einen oder mehrere Abschnitte aus flexiblen Material, gebildet durch Flansche (32, 39) aus

flexiblem Material, die mit dem Abschnitt (den Abschnitten) aus steifem Material (33, 38) coextrudiert sind und Ausnehmungen oder Hohlräumen (35, 40) benachbart sind, deren Basisfläche bezüglich der Bezugsfläche (n) zurückversetzt ist, wobei die Flansche in eine Lage umbiegbar sind, in welcher sie vollständig in den Ausnehmungen oder Hohlräumen aufgenommen sind.

2. Innenraumteiler nach Anspruch 1, dadurch gekennzeichnet, daß die Quer-Lagerplatten (5, 6) zumindest entlang ihren Sichtkanten mit Metall-Abschlußprofilen (25) versehen sind, die ihrerseits mit Verriegelungssitzen (29) zur Aufnahme und Verbindung entsprechender Schnappverbindungsteile (30) ausgestattet sind, welche von der dichtend gegen die Schließplatten anliegenden Dichtung (31) abstehen.

3. Innenraumteiler nach Anspruch 2, dadurch gekennzeichnet, daß die Metall-Abschlußprofile (25) mit Längsausnehmungen (25a) in der Nähe ihrer nach außen weisenden Kanten ausgestattet sind, welche so ausgebildet sind, daß sie Sitze für die Anbringung und die Verriegelung von Abdeckwänden geringerer Dicke bilden.

4. Innenraumteiler nach Anspruch 2, dadurch gekennzeichnet, daß die Metall-Abschlußprofile (25) mit seitlichen Befestigungsflanschen (27a) ausgestattet sind, welche sich zur Überlappung der Oberflächen der Platte, an der sie montiert sind, erstrecken, und mit Vorsprüngen (27b) für den Halt an der Platte ausgestattet sind, in deren Oberfläche ausgerichtete Löcher (15) dicht an der Kante der Platte vorgesehen sind zur Aufnahme von Durchgangsverbindungsstiften (16, 17).

5. Innenraumteiler nach Anspruch 1, dadurch gekennzeichnet, daß die Quer-Lagerplatten (5, 6) zumindest an ihren Sichtkanten mit einer Dichtung (37) ausgestattet sind, die direkt an die Platten angeklebt sind.

6. Innenraumteiler nach Anspruch 5, dadurch gekennzeichnet, daß die Dichtung (37) Abschnitte (38) aus steifem Material von etwa rechteckigem Querschnitt mit zur Aufnahme des Abschnitts (der Abschnitte) flexiblen Material (39) in dessen umgebogener Lage aufweist, wobei die Dichtungen zu einer Spule aufgewickelt sind, derart, daß sie mit Hilfe eines Klebstoffs unter Zuhilfenahme von automatischen Kantenbearbeitungsmaschinen auf die Kanten der Tafeln aufgebracht werden können.

7. Innenraumteiler nach Anspruch 2 und 5, dadurch gekennzeichnet, daß die Quer-Lagerplatten mit Metall-Abschlußprofilen ausgestattet sind und die mit direkt angebrachten Dichtungen versehenen Quer-Lagerplatten abmessungsund funktionsmäßig austauschbar sind.

8. Innenraumteiler nach Anspruch 1, dadurch gekennzeichnet, daß die Metallglieder zum Zusammenbau der Struktur und zum Verankern der Abdeck-

bauteile durch Komponenten gebildet sind, welche durch die Dicke der Platte hindurchgehen und so ausgebildet sind, daß sie an einer einzelnen Oberfläche der Platte angebracht und auf beiden Seiten der Platte wirksam sind.

### Revendications

1. Cloison modulaire interne formant une unité de rangement, comprenant plusieurs montants et traverses raccordés sous forme d'un réseau dans un profilé métallique périphérique (4), les montants et traverses étant formés par des panneaux de support (5, 6) disposés transversalement à l'étendue du mur, et des panneaux de fermeture et analogues, les panneaux transversaux verticaux et horizontaux (5, 6) ayant, à leurs bords, des garnitures (31, 36) assurant leur coopération étanche avec les panneaux de fermeture, caractérisée en ce que les garnitures comprennent une partie d'un matériau rigide (33, 38), ayant au moins une surface transversale au plan de plus grande étendue du panneau et destinée à former une surface de référence dimensionnelle pour l'usinage du panneau, et une ou plusieurs parties de matériau flexible, formées par des joues (32, 39) de matériau flexible extrudées simultanément avec la partie ou les parties de matériau rigide (33, 38) et adjacentes à des évidements ou cavités (35, 40) dont la surface de base est disposée en arrière de la surface ou des surfaces de référence, les joues pouvant flétrir vers une position dans laquelle elles sont totalement logées dans les évidements ou cavités.

2. Cloison modulaire interne formant une unité de rangement selon la revendication 1, caractérisée en ce que les panneaux transversaux de support (5, 6), comportent, au moins le long de leurs bords visibles, des profilés métalliques de finition (25), ces profilés ayant des sièges (29) de blocage destinés à loger et raccorder des éléments correspondants (30) de blocage par enclenchement élastique, dépassant de la garniture d'étanchéité (31) et placés contre les panneaux de fermeture.

3. Cloison modulaire interne formant une unité de rangement selon la revendication 2, caractérisée en ce que les profilés métalliques de finition (25) ont des évidements longitudinaux (25a) placés au voisinage de leurs bords tournés vers l'extérieur et destinés à former des sièges pour l'assemblage et le blocage de parois de revêtement de plus faible épaisseur.

4. Cloison modulaire interne formant une unité de rangement selon la revendication 2, caractérisée en ce que les profilés métalliques de finition (25) ont des joues métalliques (27a) de fixation disposées afin qu'elles recouvrent les surfaces du panneau sur lequel elles sont montées et ayant des saillies (27b) de retenue sur le panneau, des trous alignés (15) étant formés sur cette surface à proximité du bord du

panneau et étant destinés à loger des goujilles de raccordement (16, 17).

5. Cloison modulaire interne formant une unité de rangement selon la revendication 1, caractérisée en ce que les panneaux transversaux de support (5, 6) sont munis, au moins à leurs bords visibles, d'une garniture (37) appliquée directement par collage aux panneaux.

10 6. Cloison modulaire interne formant une unité de rangement selon la revendication 5, caractérisée en ce que la garniture (37) a des parties (38) de matériau rigide ayant une section pratiquement rectangulaire avec des évidements (40) convenant au logement de la partie ou des parties de matériau flexible (39), lorsqu'elles sont en position fléchie, les garnitures étant enroulées sur une bobine afin qu'elles puissent être appliquées, par collage, aux bords des panneaux par des machines automatiques de finition des bords.

15 7. Cloison modulaire interne formant une unité de rangement selon les revendications 2 et 5, caractérisée en ce que les panneaux transversaux de support ayant des profilés métalliques de finition et les panneaux transversaux du support ayant les garnitures appliquées directement sont interchangeables par leurs dimensions et leurs fonctions.

20 8. Cloison modulaire interne formant une unité de rangement selon la revendication 1, caractérisée en ce que des organes métalliques d'assemblage de la structure et de fixation des éléments de revêtement sont formés par des éléments passant dans toute l'épaisseur du panneau, destinés à être appliqués sur une seule face du panneau et agissant sur les deux faces du panneau.

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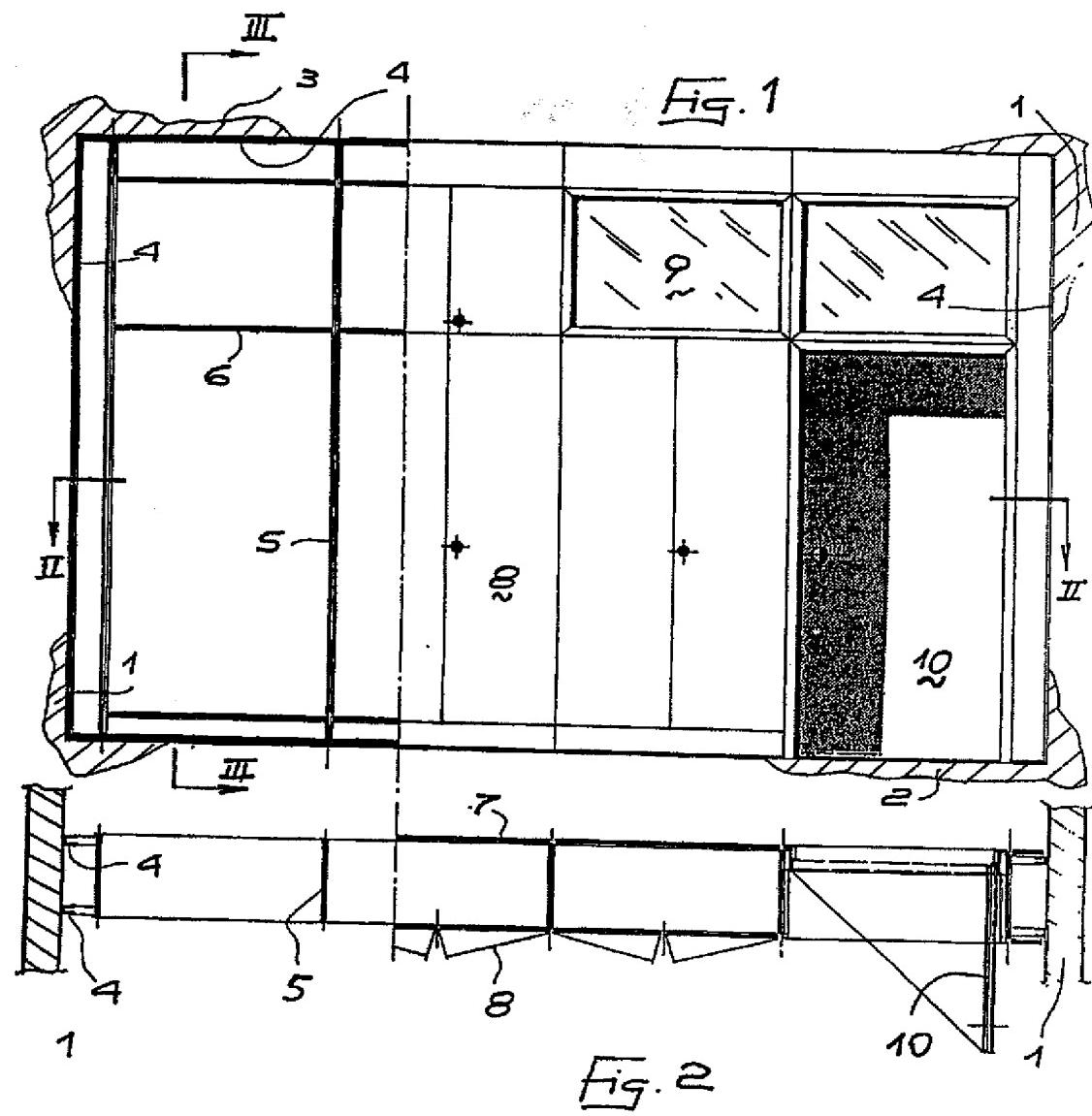
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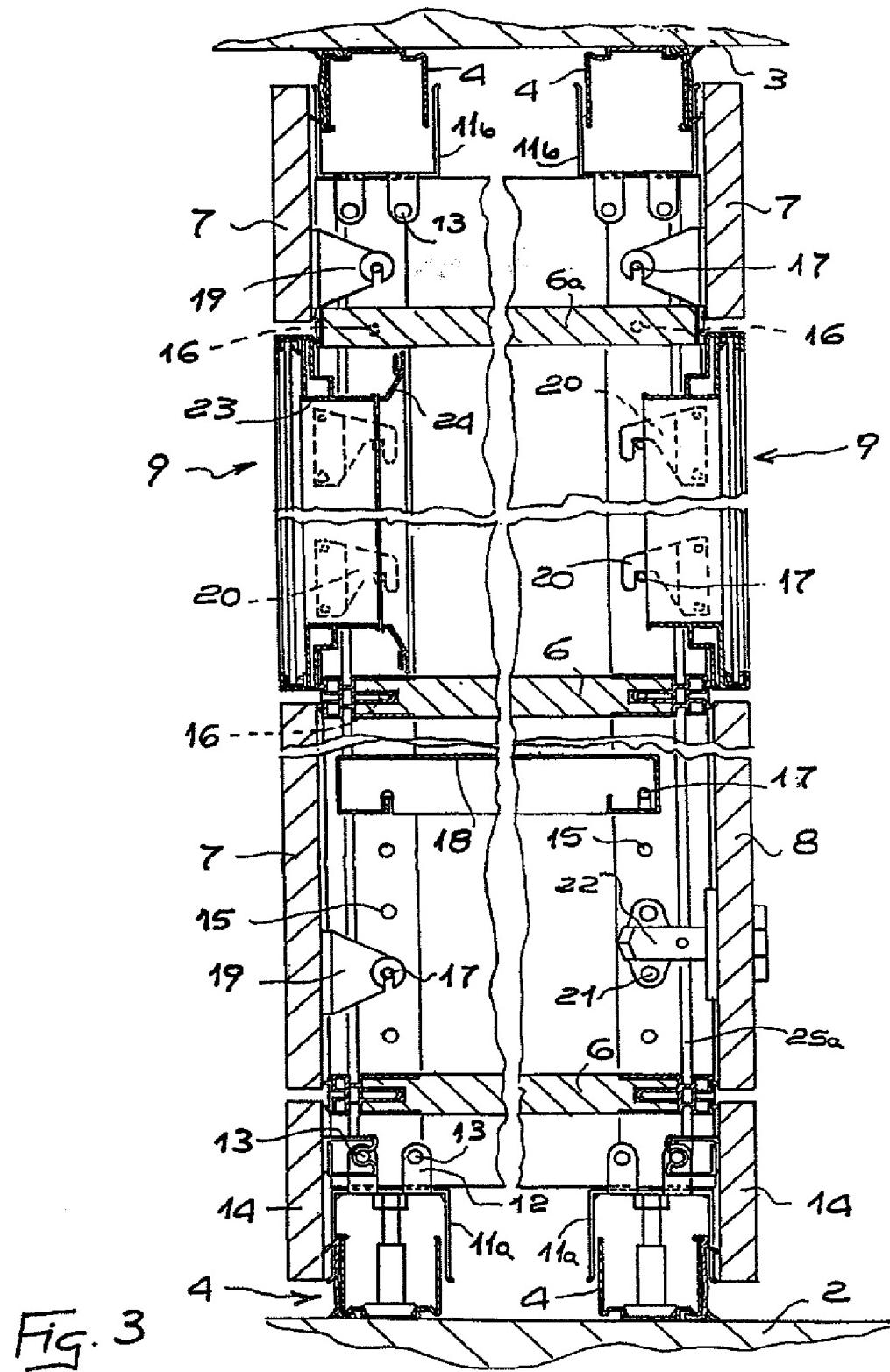
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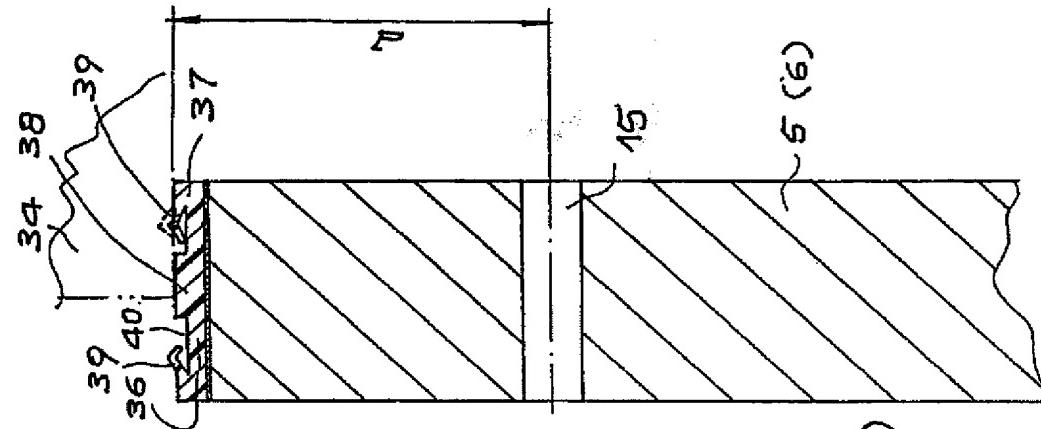


Fig. 6

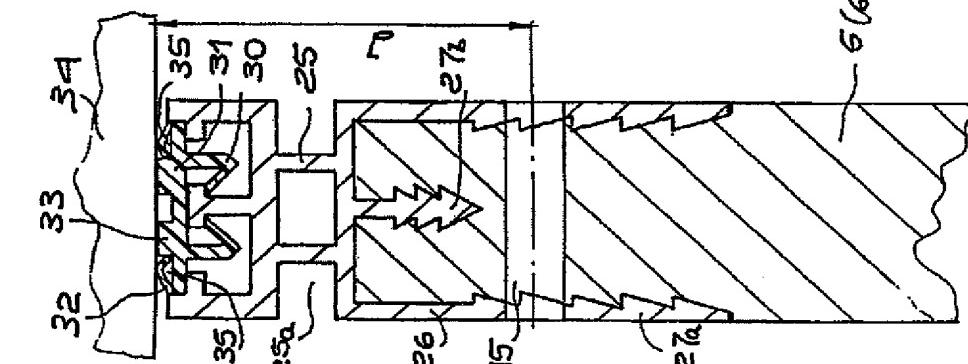


Fig. 5

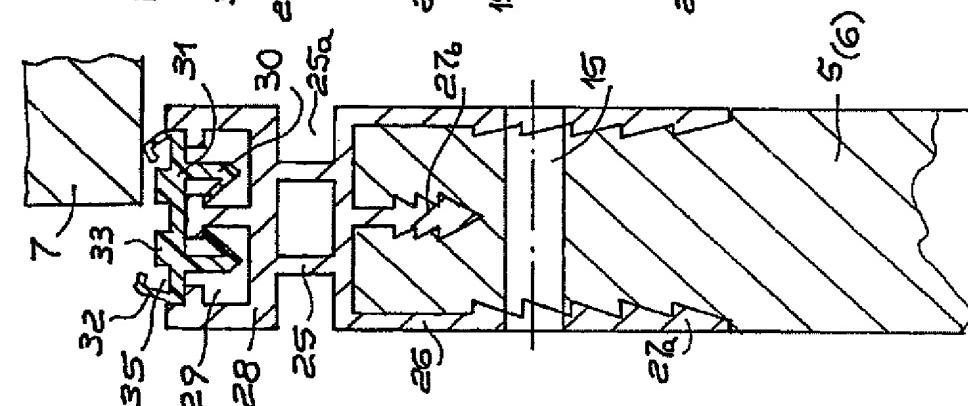


Fig. 4